

AMENDMENTS TO THE CLAIMS:

Please cancel without prejudice claims 1-20 and add newly written claims 21-41 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-20 (cancelled).

21. (new) A bolometer comprising a support element forming a micro-bridge structure on a substrate, said support element comprising substantially a single layer of support material and carrying on its underside a resistive sensing material, wherein said support element is arranged to absorb incident radiation.

22. (new) A bolometer according claim 21 wherein the thickness of said support element is tailored to be substantially $\frac{1}{4}\lambda$ of the incident radiation within the material of said support element.

23. (new) A bolometer according to claim 21 wherein said support material is SiO_2 .

24. (new) A bolometer according to claim 21 wherein said support element comprises a bridge portion and at least one leg portion, the or each said leg portion suspending said bridge portion above the substrate and wherein said resistive sensing material is provided on the underside of at least one of said leg portions.

25. (new) A bolometer according to claim 21 wherein said resistive sensing material is provided as at least one track having a meandering structure.

26. (new) A bolometer according to claim 25 wherein said meandering structure has portions in transverse directions.

27. (new) A bolometer according to claim 26 wherein said transverse directions are substantially perpendicular to one another.

28. (new) A bolometer according to claim 21 further comprising a matching layer on an uppermost surface of the support element.

29. (new) A method of fabricating a bolometer including a micro-bridge structure onto a substrate having the steps of:

- a. providing a sacrificial material on a surface region of the substrate;
- b. patternwise etching the sacrificial material;
- c. providing a sensing material on a surface region of the sacrificial material;
- d. providing a support material on a surface region of the sensing material; and
- e. removing the sacrificial material leaving support material with the sensing material on its lower surface, substantially free standing above the substrate.

30. (new) A method according to claim 29 in which the sacrificial material is polyimide.

31. (new) A method according to one of claims 29 or 30 wherein the method comprises applying said support material such that it has a thickness of about $\frac{1}{4}\lambda$ where λ is the wavelength of the incident radiation of interest within said support material.

32. (new) A method according to claim 29 which comprises providing the sensing material such that incident radiation having a specific polarisation cannot pass therethrough.

33. (new) A method according to claim 29 wherein the sensing material is provided as at least one meandering track.

34. (new) A method according to claim 33 in which the at least one track is provided such that it has lengths running in directions transverse to one another.

35. (new) A method according to claim 29 wherein an encapsulated package is provided for the micro-bridge structure.

36. (new) A method according to claim 35 comprising filling the encapsulated package with a gas having a low thermal conductivity, or evacuating the package.

37. (new) A transducer incorporating a micro-bridge structure according to of claim 21.

38. (new) A transducer according to claim 37 wherein the transducer is an IR transducer and/or emitter.

39. (new) A bolometer comprising a micro-bridge structure having a substrate above which there is provided a support element, arranged to absorb incident radiation, and on the underside of said support element there is provided a resistive sensing material arranged to change resistance in response to incident radiation, said sensing material being supported above said substrate by said support element but connected at connecting regions to tracks on said substrate and said support element running from a region adjacent said substrate and comprising substantially a single layer of material.

40. (new) A resistive bolometer apparatus comprising a continuous layer of support material forming a micro-bridge over a substrate and at least one continuous track of sensing material on the underside of said support material.

41. (new) A method of forming a micro-bridge bolometer device wherein a layer of resistive sensing material is provided prior to providing a layer of support material forming said micro-bridge.